

**FACT SHEET FOR NPDES PERMIT
NO. WA-002175-0**

**TWIN CITY FOODS, INC.
PROSSER FACILITY**

SUMMARY

Twin City Foods, Inc., (TCF) is seeking reissuance of its National Pollutant Discharge Elimination System (NPDES) Permit for its Prosser facility. TCF's Prosser facility processes raw potatoes into frozen french fries. This permit provides coverage for discharges of process wastewater, noncontact cooling water and storm water to the Yakima River and the City of Prosser (City) Publicly-Owned Treatment Works (POTW).

From 1987 to 1996, TCF pretreated its wastewater in an onsite bulk volume fermenter (BVF), an anaerobic process, and discharged the effluent to the POTW. However, the BVF never achieved the anticipated standard of performance. In 1997, TCF completed an extensive upgrade of the treatment system that would improve the effluent quality of the BVF, allowing direct discharge to the Yakima River. The enhanced treatment train consists of the BVF, followed by an advanced-design oxidation ditch (EIMCO Carrousel®), a sand filter, a cooling tower and a cascade aeration process. TCF's upgraded treatment system has not achieved the high standard of performance anticipated in its engineering report (ER).

TCF's selection of the Carrousel system was based on the successful utilization of the process by Lamb-Weston, another nearby potato processor, and a promising two year pilot project at TCF's Prosser facility. Although neither company's treatment system has achieved the ambitious treatment goals anticipated in their respective engineering reports, TCF's system discharges more variable effluent than Lamb-Weston's system. Given the similar wastewater characteristics and the treatment processes, except for the BVF, Lamb-Weston's system establishes a *de facto* standard of performance.

Based on the 2000 technical report developed by EIMCO and TCF, and the more successful operation of the Carrousel/sand filter treatment processes at Lamb-Weston, the Department feels TCF's treatment facility has not consistently achieved the standard of performance anticipated in the 1995 ER. Neither the 1986 ER (for the BVF) nor the 1995 ER (for the Carrousel/sand filter) contains the stamp of a Professional Engineer (P. E.), a requirement of Chapter 173-240 WAC for final approval of a treatment system design by the Department.

For these reasons, this permit contains a three year Schedule of Compliance, with performance-based BOD and TSS interim effluent limits and the stringent final technology-based effluent

limits established in the 1995 ER. The Schedule of Compliance requires TCF to submit to the Department, for review and approval, an ER written in accordance with WAC 173-240-130. The primary purpose of the ER to develop a new AKART (all known, available, and reasonable methods of prevention, control and treatment) standard for the treatment facility. In accordance with WAC 173-240-160(1), this ER is required to be stamped by a P. E. In addition to proposing measures to make the treatment system perform more consistent, a primary objective of the ER will be to determine reasonable effluent limits for TCF's discharge. Upon approval of the ER, final effluent limits will be implemented through a permit modification.

TABLE OF CONTENTS

	<u>Page</u>
SUMMARY	1
INTRODUCTION	5
GENERAL INFORMATION	6
BACKGROUND INFORMATION	6
DESCRIPTION OF THE FACILITY	6
Wastewater Treatment	6
DISCHARGE OUTFALL	7
PERMIT STATUS	8
SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT	8
WASTEWATER CHARACTERIZATION	9
PERMIT LIMITATIONS	10
PREDICTED AND ACTUAL PERFORMANCE OF THE TREATMENT SYSTEM	11
1986 and 1995 Engineering Reports	11
2000 Analysis of the TCF Wastewater Treatment System	12
TECHNOLOGY-BASED EFFLUENT LIMITATIONS	15
Federal Categorical Regulations	15
Technology-based Limitations in this Permit	15
Interim Limitations	16
BOD	17
TSS	18
Ammonia and TKN	18
DO	18
pH	18
Flow	18
Temperature	19
BOD and TSS	21
BOD and TSS	21
Final Limitations	22
EFFLUENT LIMITS BASED ON LOCAL LIMITS	23
SCHEDULE OF COMPLIANCE	23
SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS	24
Numerical Criteria for the Protection of Aquatic Life	24
Numerical Criteria for the Protection of Human Health	24
Narrative Criteria	25
Antidegradation	25
Critical Conditions	25

Mixing Zones	25
Description of the Receiving Water	26
Surface Water Quality Criteria	26
Consideration of Surface Water Quality-Based Limits for Numeric Criteria	27
Whole Effluent Toxicity	29
Human Health	29
Sediment Quality	29
GROUND WATER QUALITY LIMITATIONS	30
MONITORING REQUIREMENTS	30
LAB ACCREDITATION	30
OTHER PERMIT CONDITIONS	30
REPORTING AND RECORDKEEPING	30
SPILL AND SLUG DISCHARGE PREVENTION AND CONTROL PLAN	31
SOLID WASTE PLAN	31
TREATMENT SYSTEM OPERATING PLAN	31
GENERAL CONDITIONS	31
PERMIT ISSUANCE PROCEDURES	31
PERMIT MODIFICATIONS	31
RECOMMENDATION FOR PERMIT ISSUANCE	32
REFERENCES FOR TEXT AND APPENDICES	32
APPENDIX A -- PUBLIC INVOLVEMENT INFORMATION	34
APPENDIX B -- GLOSSARY	36
APPENDIX C -- TECHNICAL CALCULATIONS	40

INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the State of Washington to administer the NPDES permit program. Chapter 90.48 RCW defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the State is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	Twin City Foods, Inc.
Facility Address	506 Sixth Street Prosser, WA 99350
Type of Facility:	Potato Processor
SIC Code	2037
Discharge Location-- Outfall 001	Yakima River, River Mile 47.0 Latitude: 46° 12' 10" N Longitude: 119° 46' 35" W
Discharge Location-- Outfall 002	City of Prosser POTW Latitude: 46° 12' 20" N Longitude: 119° 46' 23" W
Water Body ID Number	WA-37-1010

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

Twin City Foods, Inc. (TCF), located in the City of Prosser (City), processes raw potatoes (a maximum of 700 tons/day) into french fries and other products (e.g. tater-tots, slices, jo-jos, hash browns) which are then frozen, stored and shipped. Starch is also produced from potato scraps.

The TCF facility operates year-round and employs approximately 400 full-time workers, during three shifts each day. The industrial processes are washing of the raw potatoes, peeling, cutting, frying, blanching, frying, freezing, packaging, and cold storage.

Wastewater Treatment

Process wastewater is subjected to the following treatment processes: screened (fine-mesh hydrosieve), anaerobic digestion, chemical conditioning, activated sludge, nitrification, denitrification, sedimentation, multi-media filtration, cooling tower, post-aeration, and belt filtration of sludge.

Prior to the construction of the BVF, in 1987, TCF sent its untreated process wastewater to the City of Prosser's Publicly-Owned Treatment Works (POTW) and discharged its non-contact cooling water to the Yakima River. However, over time these discharges of process wastewater, combined with those of other dischargers, were consistently overloading that municipal POTW,

causing operational problems due to excessive BOD and solids. In 1987, Twin City Foods, Inc. (TCF) constructed an anaerobic Bulk Volume Fermenter (BVF) for pretreating its process wastewater prior to discharge, reducing the facility's loading to the POTW. The BVF is an earthen and concrete basin, lined with HDPE, and has a volume of approximately 7 million gallons.

Even after the installation of the BVF, the facility continued to discharge wastewater with high BOD and TSS concentrations. In 1996, TCF began construction of an additional secondary treatment facility utilizing an anaerobic/aerobic EIMCO Carrousel treatment system (EIMCO Process Equipment Company), which is a proprietary, modified oxidation ditch. The additional wastewater treatment system was built to further treat the process wastewaters, which continued to cause problems at the POTW, and to allow TCF to ultimately discharge directly into the Yakima River. The 1995 engineering report anticipated that, after treatment through the hybrid BVF/Carrousel system, the company would consistently achieve average monthly BOD/TSS concentrations of 10 mg/L, or less. On the basis of the engineering report, the 1997 permit established average monthly final effluent limits of 10 mg/L.

In August of 1997, the EIMCO wastewater treatment facility was completed. This facility also includes the following advanced treatment processes: granular media filter, a cooling tower, and a final reaeration process. The granular media filter removes solids and BOD which may have remained subsequent to secondary clarification. The final reaeration process consists of a forty-foot long stepped cascade and rock-filled dispersion box, surrounded by shade trees, resulting in a sidebank discharge. This process was added to allow the final effluent to gain sufficient dissolved oxygen and dissipate heat load so that the State's water quality standards for the Yakima River could be met at the discharge point and aquatic habitat can be preserved.

TCF has experienced significant difficulties in consistently achieving the performance standard anticipated in the engineering report. See the **Wastewater Characterization and Performance Standards** sections of this fact sheet for data analysis and further discussion of this issue.

DISCHARGE OUTFALL

In order to appreciate the design of the outfall structure, the context of the receiving water must be understood. The facility discharges to the Yakima River, approximately one mile upstream of the Prosser Diversion Dam. This segment of the river has hydrologic characteristics of a reservoir, in that the water body is stratified by temperature, with the water closest to the surface the warmest and the deepest water the coldest. The Permittee's outfall is a flow dispersion box design located on the bank of the river. The dispersion box consists of a 3ft x 3ft x 3.5ft deep rock-filled cavity screened on the river side. Effluent flows through the submerged screen, down the side of the streambed, down to the stratified layer of water that is slightly colder and more dense than the discharge, where it disperses. This discharge process is less disruptive to aquatic life than a traditional diffuser because, rather than being diffused throughout the water column,

the final disposition of the discharge takes into account the stratified nature of the receiving water.

PERMIT STATUS

The previous permit for this facility was issued on July 13, 1998. The previous permit placed interim and final effluent limitations on ammonia, 5-day biological oxygen demand (BOD₅), flow, temperature, total kjeldahl nitrogen (TKN), total suspended solids (TSS), dissolved oxygen (DO) and pH. The final limits, which were scheduled to be implemented on August 1, 2001, were never implemented because TCF's treatment system has not been able to achieve the stringent, technology-based limits. See the **Performance Standards** section of this fact sheet for more discussion on this matter.

An application for permit renewal was received by the Department on July 1, 2002 and accepted by the Department on July 8, 2002.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility last received a compliance inspection without sampling on October 17, 2003.

During the history of the previous permit the Permittee has experienced problems complying with the effluent limits established in the previous permit, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department. In one instance, an upset of the onsite wastewater treatment plant that occurred in 2002, Twin City Foods was out of compliance with its effluent limits for approximately two months.

During the previous permit cycle (1998 to present), the Department issued one Notice of Violation (NOV) and one Administrative Order to the Permittee. The contents of each are briefly described as follows:

NOV No. DE 02WQCR-3890: This NOV was issued in response to a major upset of the onsite wastewater treatment plant that resulted in multiple violations of the interim BOD and TSS effluent limits during the last three weeks of February 2002. The NOV cited 6 exceedances of the BOD limits and 16 exceedances of the TSS limits. The violations were a combination of exceedances of daily maximum and monthly average limits, and concentration and mass loading limits.

Upset conditions at the onsite wastewater treatment plant continued to early April 2002. A draft NOV was prepared citing effluent limit violations that occurred during March 2002, but was never issued due to a bureaucratic oversight. The draft NOV detailed 5 violations of BOD limits, 29 TSS violations and 2 TKN violations.

In a letter dated February 12, 2002, Twin City Foods initially attributed the upset to a chemical spill that occurred during cleanup operations. In subsequent letters to the Department, the company stated that excessive concentrations of fats, oils and greases discharged to the treatment system may also have contributed to the upset. The company further explained that it had a contract with the City to allow discharge to the POTW when TCF anticipated violating the permit's river discharge limits. TCF was not aware that the City had scheduled an upgrade of the POTW and was not able to accept the company's effluent. The company firmly believes that, in general, its relations with the City are excellent and it is unlikely such a situation will occur again in the future.

Administrative Order No. DE 00WQCR-1882: This Order granted the company's request to extend the duration of the interim effluent limits to the end of the permit cycle, June 30, 2003. The reasons for the company's request were detailed in a letter dated December 6, 2000. TCF's letter stated that, despite the company's extensive efforts to achieve the treatment performance standard anticipated in the ER, compliance with the final effluent limits would not be possible at that time and the company needed more time.

WASTEWATER CHARACTERIZATION

Table 1 contains an effluent characterization of the discharge to the Yakima River for the following regulated parameters, based on DMR data submitted to the Department:

Table 1: Wastewater Characterization January 2002 thru October 2003

Parameter	22-month Average	Highest Monthly Average	Highest Daily Maximum	Permit Limits			
				Interim		Final	
				AM	MD	AM	MD
BOD, in mg/L	19.0	73.5	147.8	30	50	10	20
TSS, in mg/L	24.4	94.2	191.0	30	50	10	20
Total Ammonia, in mg/L	0.25	2.90	3.14	3	5	1	3
TKN, in mg/L	10.0	NA ^a	23.7	20	30	10	20
Temperature, in °C	17.8	21.2	23.9	NA ^b	21	NA	21
Flow, in MGD	0.35	0.45	0.585	0.5	0.745	0.5	0.745

AM means average monthly; MD means maximum daily

NA means not applicable for the following reasons:

a-TKN is monitored only once per month.

b-No average monthly temperature limit was established in the previous permit.

TCF has had significant problems achieving the standard of performance of the treatment system that was anticipated in the 1995 ER. The highest BOD, TSS, ammonia and TKN concentrations reported during the 22-month characterization period occurred during a major upset of the onsite

treatment system that took place from early February to early April of 2002. The company initially attributed the upset to a discharge of cleaning washwater from the production facility. However, in a letter dated March 6, 2002, the company reported the cause to be a discharge of 'greasy fried product' (french fries) to the BVF that occurred during the annual, end-of-year production facility shutdown. The fried product was discharged to the BVF to sustain treatment bacteria during the shutdown. The company acknowledged that this was a mistake and said that, in the future, only 'non-fried or raw potato matter' would be added to the BVF during shutdowns.

Aside from the catastrophic upset that occurred during 2002, the performance of the treatment system is inconsistent on a routine basis. Analysis of BOD monthly averages reported during the characterization period indicates that the facility would have been compliance with the 10 mg/L monthly design standard only 7 of 22 months. Similarly, TSS monthly averages would have been in compliance only 6 of 22 months.

Effluent ammonia concentrations are generally below 1 mg/L. Only three samples exceeded 1 mg/L: two occurred during the 2002 upset and the third was reported in December 2002.

TKN concentrations typically ranged between 6 mg/L and 12 mg/L during the characterization period. Several samples contained TKN concentrations below 6 mg/L and 2 samples were higher than the final effluent limit of 20 mg/L. (The effective date of all final effluent limits was postponed until the expiration date of the permit, June 30, 2003, by Administrative Order No. DE 00WQCR-1882.)

Effluent Temperatures usually peak during the warm weather months of July, August and September. During these months the high ambient air temperature and dew point determines the efficacy of the cooling processes (cooling tower, cascade aeration and dispersion box) that the company has installed to cool the discharge. During the characterization period, the highest average monthly temperature of 21.2°C occurred in September 2003. The single highest effluent temperature of 23.9°C occurred on the afternoon of July 31, 2003. On that day the highest recorded air temperature at nearby Hanford, WA was 41°C (105.8°F) and the dew point was 13°C. The downstream water temperature, as measured at the nearby Prosser Dam, was 24.8°C.

The previous permit contained a minimum daily DO effluent limit of 4.0 mg/L. The 22-month average DO concentration was 8.7 mg/L and the lowest reported DO concentration was 7.65 mg/L.

During the characterization period the lowest reported pH was 6.75 and the highest reported value was 8.39.

PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the

treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC).

Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

PREDICTED AND ACTUAL PERFORMANCE OF THE TREATMENT SYSTEM

The following sections contain a rather detailed description of TCF's ambitious efforts over the last 20 years to construct, and then dramatically improve the performance of, its onsite wastewater treatment facility. During the early 1980s TCF was discharging essentially untreated process wastewater to the City's POTW with BOD and TSS concentrations of approximately 4,500 mg/L. Although the present onsite treatment system has not quite achieved the company's expectations, it does consistently treat wastewater to concentrations below 50 mg/L, and sometimes below 10 mg/L. It is the intent of this fact sheet to not only document the company's exhaustive efforts over the last 20 years, but to also provide context for the permit conditions contained in this upcoming permit.

1986 and 1995 Engineering Reports

Engineering reports were submitted to the Department for both the BVF treatment process, in 1986, and the Carrousel treatment system, in 1995. Although these ERs contained loading

criteria, the Department does not consider these documents approved ERs, because neither document was stamped by a Professional Engineer. For this reason, this fact sheet does not detail the design loadings of the treatment system. However, before construction of the Carrousel system, the company publicly committed to an advanced wastewater treatment performance standard to meet water quality standards at end-of-pipe to get authorization for a discharge to the river. These performance standards, expressed as effluent limits, are detailed in the next section of this fact sheet.

During extensive discussions with the Department in the mid-1990's, TCF committed to complying with the State's Surface Water Quality Standards at end-of-pipe (without benefit of dilution), and the 1995 ER anticipated this stringent performance standard was technologically achievable. The performance standards were as follows:

Table 2: Design Standards for the Twin City Foods Prosser Treatment Facility

Parameter	Design Quantity
Average Monthly Effluent BOD ₅	10 mg/L
Average Monthly Effluent TSS	10 mg/L
Average Monthly Effluent Ammonia	1 mg/L

The basis of TCF's expectation was the successful use of the Carrousel system to treat wastewater at three industrial facilities in Europe and the Lamb-Weston potato processing plant in Richland, WA. The company's analysis of the characteristics of its wastewater and the comprehensive review of the technologies utilized at similar facilities, along with the company's certainty that the performance standard was achievable and reasonable in cost, are primary factors of an AKART determination. The Department considered the 1995 ER a *de facto* AKART determination, especially since Lamb-Weston's Carrousel treatment system has been much more successful at achieving this stringent standard of performance. Lamb-Weston's treatment system consists of a Carrousel and a granular filter, but does not include an anaerobic (BVF) process.

2000 Analysis of the TCF Wastewater Treatment System

Since the beginning of operations of the advanced wastewater treatment system in August 1997, TCF's extensive efforts to achieve the AKART performance standard have been only marginally successful. The treatment system has been able to achieve average monthly BOD and TSS effluent concentrations of 10 mg/L or less for up to 3 consecutive months at a time, but then performance degrades for weeks or months at a time.

In an effort to correct deficiencies of the treatment system, and with an eye towards achieving compliance with the stringent final limits, TCF and EIMCO collaborated in a formal study to comprehensively assess the situation. The study report is dated October 2000. The study report documents the series of evaluations and experiments conducted since 1997 to achieve the

standard of performance anticipated in the 1995 ER. The report documents a series of 10 treatment plant upsets that occurred from 1998 to the report's publication. Five of the ten upsets were attributable to human-caused errors, such as slug discharges of cleaning agents and equipment malfunctions caused by electrical problems. The report states that even with the extensive efforts carried out to evaluate and correct the upsets, the causes of the other five documented upsets could not be determined.

In addition to documenting recent upsets, the report details efforts to determine refractory characteristics of the wastewater that are inhibiting treatment and testing programs that were undertaken to correct the problem. Concerning refractory constituents in the wastewater, the report concluded that the fine, white, colloidal particles that would not settle were probably starch particles (Appendix 1, p. 8). The formation of colloidal particles during wastewater treatment had not been previously encountered by EIMCO in its long history of treating potato processing wastewater. It was hypothesized that perhaps the unique sequence of treatment units, in which the first unit was anaerobic digestion, followed by aerobic secondary treatment and a tertiary treatment polishing process, could cause the formation of the colloidal materials (Introduction, p. 1).

The report suggested two deficiencies of the BVF process that could be contributing to the problem. The first is poor mixing and control of the treatment process within the BVF which results in uneven loadings to the Carrousel system. In the short, but intensive sampling program conducted by the researchers, which consisted of five days of sampling during March 1998, chemical oxygen demand (COD) of BVF effluent ranged from 2,000 mg/L to more than 8,000 mg/L. The report concluded that, since there is little control over what's happening in the BVF, loadings to the Carrousel process vary widely, making consistent treatment challenging.

The second major deficiency of the BVF process involved insufficient TKN and ammonium nitrogen in the discharge to the Carrousel process. The report notes the treatment processes downstream of the BVF need approximately 2-3 mg/L of ammonium for proper settling to occur, but the ammonium ions are not available. In short, the treatment system is not in nitrogen balance because the BVF is not leaving enough for the aerobic processes to properly function (App. 1, pp 7-10). The report recommends nitrogen augmentation of the aerobic processes when necessary. The report also recommended that a plan be developed to actively manage the BVF process rather than simply accepting what it discharges.

Concerning removal of the solids that contribute to exceedances of the TSS permit limit, the 1995 ER anticipated the granular media filter would remove such solids, resulting in achievement of the suspended solids permit limit. However, due to the colloidal nature of the particles, the filter has not been very effective. TCF and EIMCO tried several remedies to enhance solids removal. In a test program conducted in March and April 1998, EIMCO personnel determined that "testing with alum and polymer in the clarifier resulted in somewhat improved settling, but did not produce effluent consistently below 10 mg/L of BOD and TSS".

A second round of testing conducted during September and October 1998 utilized a pilot scale dissolved air flotation (DAF) unit. The DAF unit was used to treat Carrousel and clarifier effluent. Using a variety of flocculation aids, the DAF unit was unable to produce effluent that met the 10 mg/L standard, except for those times when extremely high concentrations of a combination of polymer and iron sulfate were used. However, the large quantities of chemicals required would have resulted in a cost of operation of approximately \$900 per day and a vast quantity of sludge for disposal.

The next testing program, performed in February 2000, involved chemical screening, bench scale DAF and pilot scale granular media testing. Chemical screening, using a variety of inorganic and organic chemicals and the DAF process, both resulted in removal of coarser solids, but the colloidal solids remained in suspension. The different media sizes used (sand and anthracite) in the granular filters proved to perform no better than those in the existing sand filter.

In the most recent test program, conducted by EIMCO in August 2000, a pilot scale pre-coat filter was tested on the final effluent. The filter was able to reduce suspended solids to below 3 mg/L. However, at a time when the effluent to the filter was approximately 15 mg/L, the period between cleanings was only 1 to 1½ days. During an upset situation when the solids concentrations are much higher, the cycle times would be reduced to a few hours, thus essentially ruling out this type of final filter as an option.

The study report concludes as follows:

Although EIMCO has investigated and researched the TCF treatment plant operations at Prosser for more than two years, utilizing their most competent technical personnel as well as outside experts, and TCF has contributed heavily to the expenditures involved, it must be concluded that it appears unlikely that the effluent can meet the 10/10 permit requirements when they become effective on August 1, 2002 (p. 4).

The report did not explicitly cite the BVF as the cause of the treatment system's problems, but this was done implicitly throughout the document. For instance, the formation of the colloidal solids and the inability of the solids to settle in the Carrousel and clarifier is attributed to the BVF.

TCF has since disavowed the 2000 evaluation report. The company maintains that the lead researcher ordered the mixers in the BVF to be run for long periods of time before sampling occurred, which made the effluent samples unrepresentative of normal operating procedures. TCF asserts that, for all practical purposes, the report has been discredited by subsequent testing that has conducted since its release. Too much weight was given to data that were based on too short of a timeframe and parameters that were not representative to have any validity from a statistical perspective. However, a discussion of the report is included in this fact sheet because

data recently supplied by TCF suggests the report's conclusions may provide some useful information for future inquiry. For example, one of the report's findings was that the BVF effluent was found to be highly variable, which made treatment in the Carrousel process difficult. TCF sampled BVF effluent four times during August 2003, approximately once a week. Effluent BOD concentrations during this month ranged from 118 mg/L to 963 mg/L. Based on observations at conventional wastewater treatment plants, it is conceivable that the variable loadings from the BVF may indeed be impacting the treatment process in the Carrousel.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

This section of the fact sheet contains a discussion of the various regulations to which TCF's discharges are subject. First, the Federal categorical pretreatment standards for discharge to the river are discussed, but quickly dismissed because the AKART standards in the 1995 ER are much more stringent. Then, the methodology used to calculate performance-based interim effluent limits is discussed. Next, a discussion of the final limits is presented, but is brief because the previous final limits are clearly unattainable and new final limits have yet to be determined. This section concludes with a short discussion of the limits regulating the discharge to the City's POTW.

Federal Categorical Regulations

TCF's discharges to the Yakima River and the City's POTW are subject to the Federal categorical regulations contained in 40 CFR, Part 407--*Canned and Preserved Fruits and Vegetables Processing Point Source Category*, Subpart D--*Frozen Potato Products Subcategory*. However, due to the age of the Federal treatment standards for river discharges--they were developed in the 1970s--they were not used in this permit. Wastewater treatment technologies have advanced to the extent that, even during the worst day of the major upset of the onsite treatment system during early 2002, TCF discharged only 14 percent (558 lbs.) of the calculated BOD daily maximum effluent limit (3,920 lbs). Federal and State regulations both require that the more stringent of the categorical standards or locally-engineered standards be utilized in developing effluent limits. In the case of TCF's discharge to the river, the effluent limits in the 1995 ER are far more stringent than the categorical standards.

Federal categorical standards (40 CFR 407.44) also address discharges to POTW's. However, the regulation specifies the discharger comply with local limits contained in the local sewer use ordinance. TCF has complied with this requirement by negotiating a user contract with the City of Prosser.

Technology-based Limitations in this Permit

This permit contains interim and final effluent limits. The interim limits are performance-based seasonal limits that will regulate the discharge during the three year Schedule of Compliance.

The final limits are provisionally set as the limits contained in the 1995 ER, but may be revised depending on the findings of the ER required by this permit.

Interim Limitations

The interim effluent limits in this permit are performance-based seasonal limits. TCF proposed performance-based seasonal limits because the wastewater generated from processing potatoes fresh from the field is lower in BOD and TSS concentrations than potatoes that have been in raw storage. Consequently, field potato-generated wastewater is more easily treatable, and the resulting final effluent discharge to the river is consistently much lower in BOD and TSS concentrations.

TCF's proposal for seasonal, interim limits was adopted in this permit because the field potato processing season (August through October) corresponds to the critical season in the receiving water, when the assimilative capacity of the Yakima River is minimal. From November through May, when the more difficult to treat storage potato wastewater is discharged, the river can more easily assimilate the higher BOD and TSS concentrations in the discharge. The effluent limits for BOD and TSS during the storage potato processing season are based on the secondary treatment standards established for municipal wastewater treatment plants. During the months of June and July, when the facility is in transition from processing storage potatoes to field potatoes, intermediate limits are in effect.

Retaining the interim limits from the previous permit was also considered, but this option was rejected for several reasons. First, although TCF has not achieved the AKART performance standard anticipated in the 1995 ER, the company has attained some success at lowering effluent concentrations through improved operation and maintenance procedures. For instance, the company has learned not to place fried potato product into the treatment system to sustain bacterial activity during annual facility shutdowns. Second, the segment of the Yakima River to which TCF discharges is listed as water quality-impaired for dissolved oxygen, and excessive discharges of BOD contribute to this impairment. The appropriate vehicle for this permit to address the improving efficiency of the treatment system and the water quality impairment, without prematurely requiring compliance with the stringent AKART performance standard, is to establish performance-based limits and a Schedule of Compliance.

Field Potatoes

Table 3 contains the interim effluent limits for discharge of field potato wastewater established in this permit.

Table 3: Interim Effluent Limits for Field Potato Discharge

EFFLUENT LIMITATIONS: OUTFALL #001			
Parameter	Units	Average Monthly	Maximum Daily
Ammonia, Total	mg/L as N	3.0	5.0
Ammonia, Total	lbs/day as N	12.5	31.1
BOD ₅	mg/L	15	30
BOD ₅	lbs/day	62.6	186.4
Flow	MGD	0.5	0.745
Temperature	°C	N/A	23.5
TKN	mg/L as N	20	30
TKN	lbs/day as N	83.4	186.4
TSS	mg/L	18	36
TSS	lbs/day	75.1	223.7
Parameter	Units	Minimum Daily	
Dissolved Oxygen	mg/L	4.0	
Parameter	Units	Daily Discharge Value	
pH	Standard Units	Shall not be outside the range of 6.0 to 9.0	

BOD and TSS performance-based limits were calculated using an algorithm based on mathematics rather than statistics. The procedure is described on page IV-18 of the Permit Writers Manual as follows: the average effluent concentration is increased by 50% to derive the monthly average limit. This monthly limit is multiplied by 2 to derive the maximum daily limit.

BOD

Average monthly effluent limit = 15 mg/L.

Maximum daily effluent limit = 15 mg/L (average monthly effluent limit) X 2

Maximum daily effluent limit = 30 mg/L.

Average monthly mass loading limit = 15 mg/L (Concentration) X 0.5 MGD (Flow) X 8.34 (Conversion factor).

Average monthly mass loading limit = 62.6 lbs/day.

Maximum daily mass loading limit = 30 mg/L (Concentration) X 0.745 MGD (Flow) X 8.34 (Conversion factor).

Maximum daily mass loading limit = 186.4 lbs/day.

TSS

Average monthly effluent limit = 18 mg/L.

Maximum daily effluent limit = 18 mg/L (average monthly effluent limit) X 2

Maximum daily effluent limit = 36 mg/L.

Average monthly mass loading limit = 18 mg/L (Concentration) X 0.5 MGD (Flow) X 8.34 (Conversion factor).

Average monthly mass loading limit = 75.1 lbs/day.

Maximum daily mass loading limit = 36 mg/L (Concentration) X 0.745 MGD (Flow) X 8.34 (Conversion factor).

Maximum daily mass loading limit = 223.7 lbs/day.

Ammonia and TKN

The interim ammonia and TKN effluent limits from the previous permit are retained in this permit. The Department anticipates that during the period the treatment system is being modified to comply with the final limits, some temporary disruptions of the nitrogen balance will be unavoidable and the final limits may be too restrictive to accommodate the work.

DO

The minimum daily DO effluent limit of 4 mg/L is required in both the interim and final limits. The lowest DO concentration reported by TCF during the characterization period was 7.65 mg/L. This limit is retained in the permit to explicitly require a minimal level of treatment in support of oxygen concentrations in the river and because this segment of the river is considered water quality-impaired for DO.

pH

The pH limits of between 6 and 9 remain unchanged from the previous permit.

Flow

The flow limits of this permit remain unchanged from the previous permit. Although flow, *per se*, is not a pollutant, these limits reflect the hydraulic loading capacity of the onsite treatment system, and for this reason are retained as effluent limits.

Temperature

The temperature effluent limit is a performance-based limit. The impact of the discharge on the temperature of the receiving water was modeled by simple mixing analysis at the critical condition. The critical season for this parameter was defined, for the purposes of this permit, to be the months of July, August and September. The receiving water temperature at the critical condition is 24.4°C and the effluent temperature is 22.2°C. The predicted resultant temperature at the boundary of the chronic mixing zone is 24.38°C and the incremental decrease is 0.02 °C.

Under critical conditions there was a prediction of a violation of the temperature criterion for the receiving water. However, as the data indicate, the violation is due more to extreme environmental factors than TCF's discharge.

TCF's discharge point is upstream of the Bureau of Reclamation's Prosser diversion dam. The Bureau maintains a probe in the reservoir that takes a temperature every 15 minutes. The data are available from the Bureau's website at:

<http://www.usbr.gov/pn/hydromet/yakima/yakwebdayread.html>.

Temperature data for this site were summarized by the permit writer for July, August and September of 2002 and the same months of 2003. The average temperature for these months in 2002 was 21.5°C and the 90th percentile value was 25.3°C. The average temperature for these months in 2003 was 21.0°C and the 90th percentile value was 23.6°C. Contributing to the impaired condition of the river are the withdrawals made from the river for irrigation of agricultural activities and the discharge of warm and turbid irrigation return water.

Given the circumstances, regulating the temperature of the TCF's discharge during warm weather months is problematic. During the past five years the company has installed a cooling tower, a cascade aeration process lined with shade trees, and a rock-filled dispersion box to help the facility comply with the temperature criterion. However, during the warm weather months, when midday river temperatures often exceed the 21°C criterion and the air temperature exceeds 90°F (32°C) for weeks at a time, engineered efforts, short of refrigeration, cannot be expected to cool the effluent below 21°C.

Its worth noting that TCF's discharge temperatures were consistently 2-3°C cooler than receiving water temperatures, although the data sets were not exactly comparable. The Bureau records temperature every 15 minutes, while TCF typically takes a daily grab sample during the warm afternoon hours.

As was stated earlier in this fact sheet, this portion of the Yakima River is on the 303(d) list of impaired water bodies. At this time, the TMDL Study to address exceedances of the temperature criterion has not been scheduled. Furthermore, neither the Department nor the U. S. EPA have developed policies to address long-term compliance of inland northwest rivers with the temperature criteria. EPA's study of the temperature problem in the Columbia River indicates

that the primary cause of the exceedances is the heat captured by the water in the dam reservoirs. The draft TMDL report anticipates only the highest volume NPDES dischargers will receive waste load allocations for heat load, which are the precursors for effluent limits.

The Department acknowledges TCF's lack of options for complying with the existing criterion. Therefore, in accordance with the policy articulated on pages VI-33 to VI-38 of the Permit Writers Manual, this permit contains an interim effluent limit of 23.5°C, with a final effluent limit to be determined in the future. The interim daily maximum limit was determined by calculating the 99th percentile value from the effluent data submitted by TCF for the months of July, August and September of 2002 and 2003.

The final limit will be determined either in a TMDL Study or at the next permit renewal by policies that have yet to be developed. In the event a new temperature limit is determined, this revised limit will be implemented through a permit modification or at the next permit renewal.

Storage Potatoes

BOD and TSS effluent limits for discharge of storage potato wastewater are based on the secondary treatment standards. Table 4 contains the interim effluent limits for discharge of storage potato wastewater established in this permit.

Table 4: Interim Effluent Limits for Storage Potato Discharge

EFFLUENT LIMITATIONS: OUTFALL #001			
Parameter	Units	Average Monthly	Maximum Daily
Ammonia, Total	mg/L as N	3.0	5.0
Ammonia, Total	lbs/day as N	12.5	31.1
BOD ₅	mg/L	30	45
BOD ₅	lbs/day	125.1	279.6
Flow	MGD	0.5	0.745
Temperature	°C	N/A	23.5
TKN	mg/L as N	20	30
TKN	lbs/day as N	83.4	186.4
TSS	mg/L	30	45
TSS	lbs/day	125.1	279.6
Parameter	Units	Minimum Daily	
Dissolved Oxygen	mg/L	4.0	
Parameter	Units	Daily Discharge Value	
pH	Standard Units	Shall not be outside the range of 6.0 to 9.0	

BOD and TSS

Average monthly mass loading limit = 30 mg/L (Concentration) X 0.5 MGD (Flow) X 8.34 (Conversion factor).

Average monthly mass loading limit = 125.1 lbs/day.

Maximum daily mass loading limit = 45 mg/L (Concentration) X 0.745 MGD (Flow) X 8.34 (Conversion factor).

Maximum daily mass loading limit = 279.6 lbs/day.

Interim effluent limits for parameters other than BOD and TSS are the same for all three potato processing seasons.

Transition between Storage Potatoes and Field Potatoes

BOD and TSS effluent limits for discharge of wastewater during the transition between storage and field potato processing are presented in Table 5.

Table 5: Interim Effluent Limits for Discharge During Transition Season			
EFFLUENT LIMITATIONS: OUTFALL #001			
Parameter	Units	Average Monthly	Maximum Daily
Ammonia, Total	mg/L as N	3.0	5.0
Ammonia, Total	lbs/day as N	12.5	31.1
BOD ₅	mg/L	20	40
BOD ₅	lbs/day	83.4	248.5
Flow	MGD	0.5	0.745
Temperature	°C	N/A	23.5
TKN	mg/L as N	20	30
TKN	lbs/day as N	83.4	186.4
TSS	mg/L	20	40
TSS	lbs/day	83.4	248.5
Parameter	Units	Minimum Daily	
Dissolved Oxygen	mg/L	4.0	
Parameter	Units	Daily Discharge Value	
pH	Standard Units	Shall not be outside the range of 6.0 to 9.0	

BOD and TSS

Average monthly mass loading limit = 20 mg/L (Concentration) X 0.5 MGD (Flow) X 8.34 (Conversion factor).

Average monthly mass loading limit = 83.4 lbs/day.

Maximum daily mass loading limit = 40 mg/L (Concentration) X 0.745 MGD (Flow) X 8.34 (Conversion factor).

Maximum daily mass loading limit = 248.5 lbs/day.

Interim effluent limits for parameters other than BOD and TSS are the same for all three potato processing seasons.

Final Limitations

The technology-based effluent limits, with the exception of ammonia and temperature, are taken from the 1995 engineering report prepared by Twin City Foods and are as follows:

Table 6: Final Effluent Limits

EFFLUENT LIMITATIONS: OUTFALL #001			
Parameter	Units	Average Monthly	Maximum Daily
Ammonia, Total	mg/L as N	1.0	3.0
Ammonia, Total	lbs/day as N	4.2	18.6
BOD ₅	mg/L	10	20
BOD ₅	lbs/day	41.7	124
Flow	MGD	0.5	0.745
Temperature	°C	N/A	23.5
TKN	mg/L as N	10	20
TKN	lbs/day as N	41.7	124
TSS	mg/L	10	20
TSS	lbs/day	41.7	125
Parameter	Units	Minimum Daily	
Dissolved Oxygen	mg/L	4.0	
Parameter	Units	Daily Discharge Value	
pH	Standard Units	Shall not be outside the range of 6.0 to 9.0	

These final limits are unchanged from the previous permit, with the exception of the performance-based temperature limit, which was discussed earlier in this section of the fact sheet. Although these limits come from an ER that was neither certified by a Professional Engineer nor approved by the Department, the permit writer has nothing else on which final effluent limits can be based. To do so would be considered arbitrary and capricious. Therefore, until TCF submits an approvable ER, these limits constitute the compliance target for this facility's discharge to the Yakima River.

TCF has recently contracted with the City of Prosser for treatment capacity at the City's POTW. In the event TCF anticipates exceeding its permitted river discharge limits, it has the option of discharging its process wastewater to the POTW.

EFFLUENT LIMITS BASED ON LOCAL LIMITS

In March 2000 TCF and the City entered into a contract to allow discharge of TCF 's process wastewater to the POTW. Since the initial contract was signed, there has been two amendments, the most recent in August 2003. Current contracted loading limits to the POTW are as follows:

Table 7: Current Contract Loading Limits to the City of Prosser's POTW

Volume	October through March	April through September
Average during any calendar month	0.5 MGD	0.5 MGD
Daily maximum	0.5 MGD	0.5 MGD
Strength		
Average BOD during any calendar month	15,000 lbs/month	48,000 lbs/month
Daily maximum BOD	500 lbs/day	1,600 lbs/month
Average TSS during any calendar month	19,500 lbs/month	36,000 lbs/month
Daily maximum TSS	1,200 lbs/day	1,200 lbs/day
Average NH ₃ during any calendar month	2,700 lbs/month	2,700 lbs/month
Daily maximum NH ₃	90 lbs/day	90 lbs/day

The above loading limits are not contained in Special Condition S1 of the permit, because TCF and the City occasionally renegotiate the contract limits and the Department does not have the staff to modify permits after each contract revision. Instead, this permit requires the current contract to be incorporated into Appendix A of TCF's O&M Manual. These limits are incorporated into Special Condition S1 of the permit by reference, and are enforceable by the Department as such.

SCHEDULE OF COMPLIANCE

Special Condition S7. specifies a three year Schedule of Compliance to allow TCF time to achieve compliance with the technology-based effluent limits detailed in the 1995 ER. The Schedule of Compliance requires submittal of an ER to the Department, for review *and approval*, and then implementation of the ER's recommendations. Unlike the 1986 and 1995 ERs submitted to the Department, this ER must be an *approvable* document written in accordance with WAC 173-240-130, and must be stamped by a Professional Engineer.

In the event TCF determines the effluent limits in the 1995 ER are not achievable, this permit requires TCF to develop 'all known, available, and reasonable methods of prevention, control and treatment' (AKART). The ER is required to include alternate effluent limits and demonstrate

that the discharge will comply with applicable surface water quality standards. Anticipated compliance with the water quality standards must be demonstrated with the use of either the Department's standard permitting spreadsheets or other approved water quality models.

In the Department's opinion, the brevity of this Schedule of Compliance is justified because TCF has had ample opportunity (approximately eight years) to achieve compliance with the standard of performance specified in the 1995 ER. While neither TCF nor Lamb-Weston has achieved consistent BOD and TSS monthly average concentrations of 10 mg/L or less, TCF's mean effluent concentrations, the variability, and the modality of the data are greater than Lamb-Weston's, requiring further analysis.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a State regulation designed to protect the beneficial uses of the surface waters of the State. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

Numerical Criteria for the Protection of Aquatic Life

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

Numerical Criteria for the Protection of Human Health

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish consumption and drinking water from surface waters.

Narrative Criteria

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) waters in the State of Washington.

Antidegradation

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

Arguably, the most significant influence on the condition of the Yakima River in the vicinity of the outfall is the Prosser Diversion Dam, located approximately one mile downstream of the discharge. TCF discharges into what is essentially a reservoir. The regulation cited above requires the use of 'natural conditions' in evaluating waterbodies, and discharges to such waterbodies, but a dam reservoir is not a natural condition. To further complicate matters, both EPA's draft report on the Columbia River temperature TMDL and the State's draft surface water quality standards give special consideration to the preservation of dams. Therefore, this permit attempts to reconcile the needs of TCF to discharge wastewater provided AKART-level treatment for temperature with river conditions significantly impacted by the presence of the diversion dam.

Critical Conditions

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

Mixing Zones

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary

of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

This permit does not formally authorize a mixing zone because the onsite treatment plant was designed to comply with the State's Surface Water Quality Standards at end-of-pipe, without benefit of dilution. Although a cursory analysis of the impact of temperature in TCF's discharge to the river was done using a simple mass-balance calculation, as recommended in the Permit Writers Manual, this analysis did not result in an authorized mixing zone. See the Temperature section of this fact sheet for further discussion of this issue.

Description of the Receiving Water

The facility discharges to the Yakima River, which is designated as a Class A receiving water in the vicinity of the outfall. The outfall for the City of Prosser's wastewater treatment plant is located approximately one-half mile downstream of TCF's outfall. Significant nearby non-point sources of pollutants include stormwater runoff from agricultural lands and urban areas.

Characteristic uses include the following:

water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation. Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

The Prosser Diversion Dam, also known as the Chandler Dam, is located approximately one mile downstream of TCF's outfall. The dam turns this segment of the river into what is essentially a reservoir.

Surface Water Quality Criteria

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Table 8: Water Quality Criteria

Parameter	Criterion
Fecal Coliforms	100 organisms/100 mL maximum geometric mean
Dissolved Oxygen	8 mg/L minimum
Temperature	21 degrees Celsius maximum or incremental increases above background
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTU above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

WAC 173-201A-130(141) details a 'special condition' for the temperature criterion of 21°C. This special condition limits the predicted impacts to the river of point source discharges that are discussed in the next section of this fact sheet.

According to the current (1998) 303(d) list, this segment of the Yakima River is considered water quality-impaired for the following parameters: arsenic, 4,4' DDD, 4,4' DDE, DDT, dieldrin, DO, endosulfan, fecal coliform bacteria, instream flow, mercury, PCB 1254, PCB 1260, pH, silver, temperature and turbidity. The listings for arsenic, mercury and silver are based on sampling conducted by the U. S. Geologic Survey during the late 1980s that have since been discredited. As a result of confirmation sampling done by the Department in recent years, in which the river was found to be in compliance with the arsenic, mercury and silver criteria, these listings have been recommended for removal from the next 303(d) list.

Exceedances of the water quality criteria for pesticides and PCBs were found to be associated with soil particles eroded from agricultural lands and deposited as sediments in the Yakima River. Many of these listings are based on analyses of fish tissue from bottom-feeding fish. The Department anticipates that the Yakima River TMDL Study to reduce sediments will result in substantial reductions of pesticide and PCB loadings to the river.

Of the remaining listings, the TMDL for fecal coliform bacteria is presently being conducted, and TMDLs for DO and temperature have not yet been scheduled. The Department expects that, with the possible exceptions of DO and temperature, TCF's discharge to the river is not likely to be contributing factors to impairment of the river.

Consideration of Surface Water Quality-Based Limits for Numeric Criteria

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse

effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of surface water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The impacts of dissolved oxygen deficiency, temperature and pH were determined as shown below, using the dilution factors at critical conditions described above.

BOD₅--There is a predicted violation of the farfield dissolved oxygen water quality criterion from BOD present in the Permittee's discharge, although the magnitude of the exceedance is difficult to quantify. The magnitude of a predicted violation is difficult to gauge because permit writers do not presently have a reliable methodology to model the farfield impacts of a single discharge in an industrialized watershed like the lower Yakima River. Although the measured DO of the discharge *at the outfall* did not go below 7.65 mg/L during the characterization period, the full impacts of BOD may not occur for 40 or 50 miles downstream.

At the time TCF proposed constructing its advanced wastewater treatment facility, the regulatory agencies present at the negotiations agreed that technology-based end-of-pipe BOD and TSS effluent limits of 10/20 mg/L (average monthly/daily maximum) would be protective of water quality and aquatic life. This assumption was necessary because the State has not established numeric water quality criteria for BOD. The parties present included the State Departments of Ecology, Fish and Wildlife, and the Yakama Indian Nation. Therefore, the Department assumes that when the facility achieves these discharge limits, the facility is in compliance with the water quality standards. Conversely, when TCF exceeds these permit limits it is in violation. If the final effluent limits were in force throughout the previous permit cycle, the Permittee would have been in violation often.

The Department acknowledges that the 10/20 performance standard for BOD and TSS may not be achievable, based on the experience and qualified success of Lamb-Weston's treatment facility. However, the Department is confident TCF's treatment facility is capable of a higher standard of performance than has been demonstrated in the past 5 years, and this permit requires TCF to increase its efforts during this upcoming permit cycle.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The only toxic pollutant believed to be in the Permittee's discharge is ammonia. The onsite treatment plant is designed to meet the State's ammonia water quality criteria at end-of-pipe. As detailed in Table 1, the 22-month average for ammonia was 0.25 mg/L, well within the technology-based limits that the Department determined are protective of water quality. However, when an upset of the treatment system occurs, as happened in early 2002, effluent ammonia concentrations can exceed 3 mg/L. As was discussed in the technology-based effluent limits section of this fact sheet, the nitrogen balance of the treatment system is intimately tied to the treatment of BOD. Therefore, this permit requires TCF to address compliance with the water quality criteria for ammonia as part of the schedule of compliance.

Whole Effluent Toxicity

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing.

Toxicity caused by unidentified pollutants is not expected in the effluent from this discharge as determined by the screening criteria given in Chapter 173-205 WAC. Therefore, no whole effluent toxicity testing is required in this permit. The Department may require effluent toxicity testing in the future if it receives information that toxicity may be present in this effluent.

Human Health

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the State by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge does not contain chemicals of concern based on existing data or knowledge. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

Sediment Quality

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground; therefore, no limitations are required based on potential effects to ground water.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved. The monitoring schedule is detailed in this permit under Special Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

The monitoring schedule in this permit remains essentially unchanged from the previous permit. The Department feels the existing sampling program adequately fulfills the function of verifying effluent characteristics and monitoring compliance with requirements in the upcoming permit.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. The laboratory at this facility is accredited for the following parameters: ammonia, BOD, DO, pH and TSS.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The requirements of Special Condition S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

SPILL AND SLUG DISCHARGE PREVENTION AND CONTROL PLAN

This permit requires the Permittee to submit to the Department an integrated Spill and Slug Discharge Prevention and Control Plan. The plan is required to address prevention and control of spills to the environment, including to the ground or storm sewers, and slug discharges to the POTW. TCF may revise any relevant existing plans as a starting point for this submittal.

SOLID WASTE PLAN

The Department has determined that the Permittee has a potential to cause pollution of the waters of the State from leachate of solid waste.

The Department has a plan on file dated December 1998. In the event the utilization/disposal of its solid wastes changes from this latest plan, this permit requires, under the authority of RCW 90.48.080, that the Permittee update the Solid Waste Plan and submit the revised plan to the Department. In addition, the plan must be submitted to the local permitting agency for approval, if required by local ordinance.

TREATMENT SYSTEM OPERATING PLAN

In accordance with State and Federal regulations, the Permittee is required to take all reasonable steps to properly operate and maintain the treatment system (40 CFR 122.41(e)) and WAC 173-220-150 (1)(g). An operation and maintenance manual is required to be submitted as required by State regulation for the construction of wastewater treatment facilities (WAC 173-240-150). It has been determined that the implementation of the procedures in the Treatment System Operating Plan is a reasonable measure to ensure compliance with the terms and limitations in the permit.

GENERAL CONDITIONS

General Conditions are based directly on State and Federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended State or Federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this proposed permit be issued for five (5) years.

REFERENCES FOR TEXT AND APPENDICES

ADI, Limited.

1986. Engineering Report on Industrial Waste Pretreatment at Twin City Foods, Prosser, WA.

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Twin City Foods, Inc.

2000. Status of Wastewater Treatment at the Prosser Plan: Report to the Department of Ecology.

1995. Engineering Report on Wastewater Treatment Facilities.

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

Washington State Department of Ecology.

Laws and Regulations(<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A -- PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on July 24, 2002 in the Tri-City Herald to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on (date) in (name of publication) to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Central Regional Office
15 West Yakima Avenue, Suite 200
Yakima, WA 98902

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

*FACT SHEET FOR
NPDES PERMIT NO. WA-002175-0
Page 35 of 44*

*TWIN CITY FOODS
PROSSER FACILITY
EXPIRATION DATE:*

Further information may be obtained from the Department by telephone, 509/457-7105 or by writing to the address listed above.

APPENDIX B -- GLOSSARY

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART-- An acronym for “all known, available, and reasonable methods of prevention, control and treatment”.

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring --Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Responsible Corporate Officer-- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the State of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C -- TECHNICAL CALCULATIONS

The following two pages contain data submitted by Twin City Foods in support of their request for seasonal interim effluent limits. The interim limits in this permit are based upon data for the years 2002 and 2003.

The third page contains data submitted by the company that documents the BOD removal of the BVF treatment process. The fact sheet narrative makes reference to the variability of the BVF effluent and the potential for this variability to reduce the effectiveness of the Carrousel and sand filter processes.

Exhibit B-2

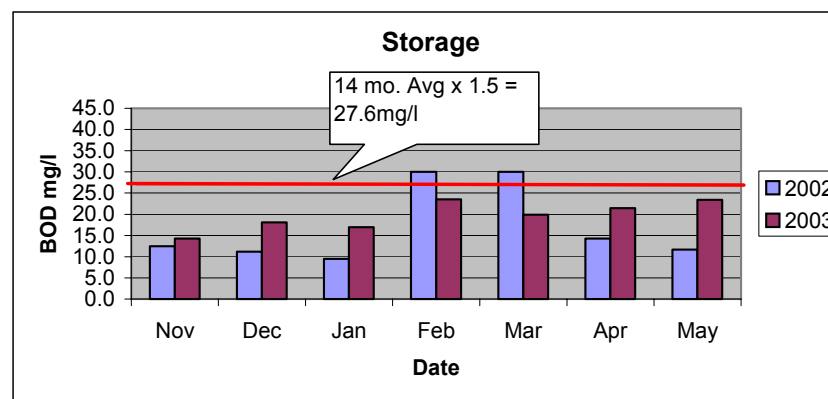
3/3/2004

2002/2003 BOD With Proposed Future Interim Limits

	STORAGE				
	1999	2000	2001	2002	2003
Nov	8.5	5.3	3.2	<u>12.5</u>	<u>14.3</u>
Dec	12.7	10.0	6.8	<u>11.2</u>	<u>18.1</u>
Jan	58.3	11.3	15.9	<u>9.5</u>	<u>17.0</u>
Feb	17.4	11.9	15.4	<u>30.0</u>	<u>23.5</u>
Mar	10.3	89.5	12.6	<u>30.0</u>	<u>19.9</u>
Apr	12.3	31.4	20.3	<u>14.3</u>	<u>21.5</u>
May	67.0	12.9	12.8	<u>11.7</u>	<u>23.4</u>
AVG.				17.0	19.7

18.4

This time frame should be left at 30mg/l



	OUT OF FIELD				
	1999	2000	2001	2002	2003
Jun	4.2	3.0	3.5	<u>11.1</u>	<u>18.4</u>
Jul	5.8	7.8	3.3	<u>9.5</u>	<u>18.0</u>
Aug	8.8	33.7	1.6	<u>7.5</u>	<u>3.6</u>
Sep	6.0	3.1	5.1	<u>5.1</u>	<u>2.5</u>
Oct	3.4	4.5	11.0	<u>5.6</u>	<u>13.6</u>
AVG.				7.8	11.2

9.5

This time frame could be lowered to 20mg/l recognizing the critical water aspects of this time frame

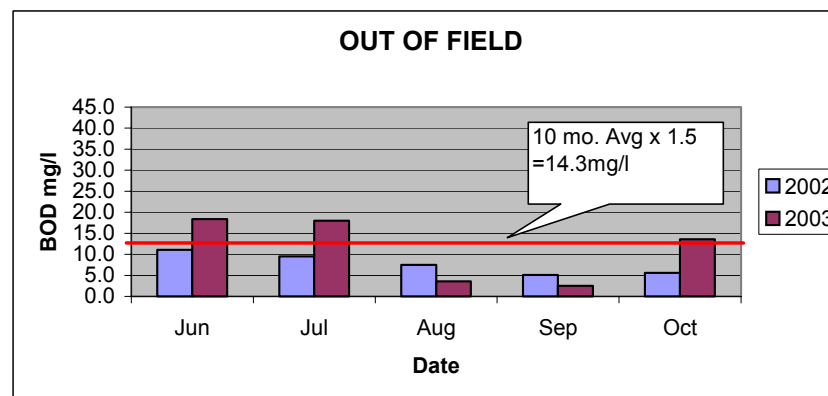


Exhibit B-1

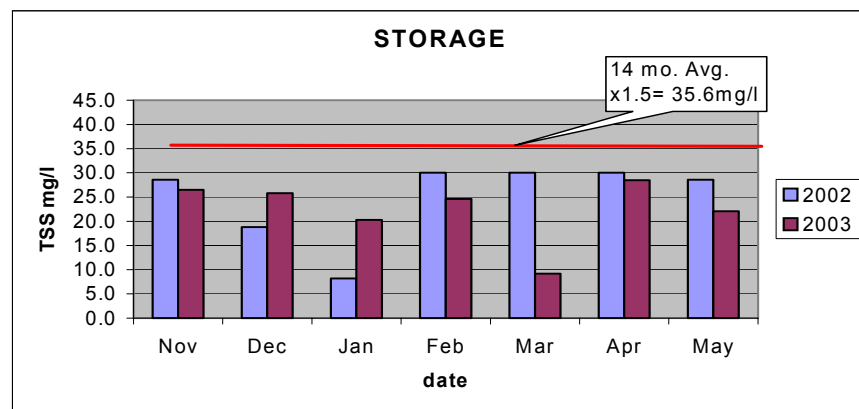
3/3/2004

2002/2003 TSS With Proposed Future Interim Limits

	STORAGE				
	1999	2000	2001	2002	2003
Nov	11.8	5.0	3.4	<u>28.6</u>	<u>26.5</u>
Dec	18.3	8.3	10.9	<u>18.8</u>	<u>25.8</u>
Jan	84.4	28.3	20.9	<u>8.2</u>	<u>20.3</u>
Feb	27.4	22.8	27.4	<u>30.0</u>	<u>24.6</u>
Mar	20.0	35.3	21.9	<u>30.0</u>	<u>9.2</u>
Apr	19.1	16.3	28.3	<u>30.0</u>	<u>28.5</u>
May	46.7	16.6	18.6	<u>28.6</u>	<u>22.1</u>
AVG.				24.9	22.4

The monthly TSS average for the storage chart would be defaulted to 30mg/l to avoid "backsliding"

23.7



	OUT OF FIELD				
	1999	2000	2001	2002	2003
Jun	11.6	4.0	6.1	<u>16.9</u>	<u>14.4</u>
Jul	16.1	18.9	5.0	<u>21.5</u>	<u>16.2</u>
Aug	19.3	51.4	1.7	<u>13.6</u>	<u>5.5</u>
Sep	16.0	4.8	6.7	<u>8.6</u>	<u>1.4</u>
Oct	8.4	5.7	17.3	<u>6.6</u>	<u>10.6</u>
				13.4	9.6

The monthly TSS average for the out of field potatoes should be defaulted to 25mg/l. This would have the potential to lower the loading during critical water as well as reducing from current limits.

11.5

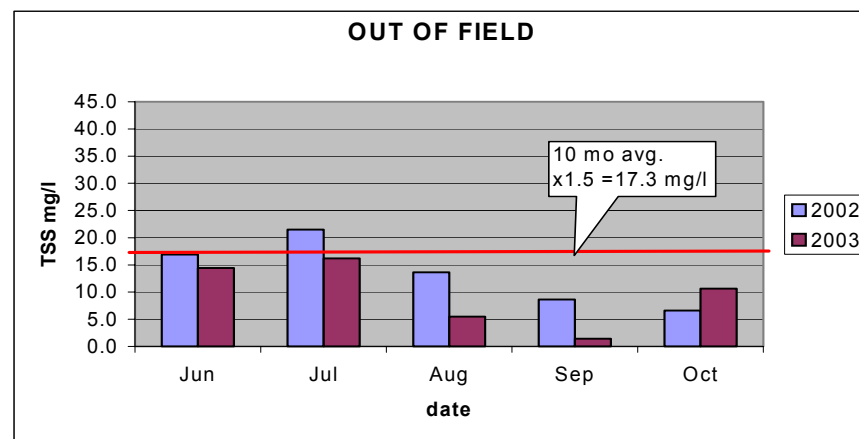


Exhibit A
3/3/2004

	BOD REMOVAL		
	Before BVF	After BVF	% Removal
1/29/2003	7763	1370	-82%
2/12/2003	8283	779	-91%
2/19/2003	8330	844	-90%
2/26/2003	7667	403	-95%
3/5/2003	9760	940	-90%
3/12/2003	9123	872	-90%
3/19/2003	9955	794	-92%
3/26/2003	6927	581	-92%
4/2/2003	9012	1139	-87%
4/9/2003	8330	515	-94%
4/16/2003	9143	721	-92%
4/23/2003	5585	852	-85%
4/30/2003	10360	1319	-87%
5/7/2003	5838	937	-84%
5/14/2003	9972	1293	-87%
7/24/2003	4723	260	-94%
7/30/2003	3983	452	-89%
8/6/2003	3810	375	-90%
8/13/2003	4770	118	-98%
8/20/2003	4980	375	-92%
8/27/2003	7320	963	-87%
9/3/2003	4740	643	-86%
9/10/2003	5070	484	-90%
9/17/2003	5235	291	-94%
9/24/2003	4530	192	-96%
10/2/2003	5940	312	-95%
10/8/2003	5398	281	-95%
10/15/2003	2292	269	-88%
10/22/2003	3800	431	-89%
10/29/2003	6051	752	-88%
11/6/2003	6215	704	-89%
11/12/2003	3517	375	-89%
11/18/2003	5645	560	-90%
12/3/2003	7972	825	-90%
AVG			90.2%

These numbers demonstrate the effectiveness of the BVF. It certainly is not "reducing" treatability

*FACT SHEET FOR
NPDES PERMIT NO. WA-002175-0
Page 44 of 44*

*TWIN CITY FOODS
PROSSER FACILITY
EXPIRATION DATE:*

APPENDIX D -- RESPONSE TO COMMENTS

DRAFT